USAWC STRATEGY RESEARCH PROJECT

ADDRESSING THE RESOURCE REQUIREMENTS MISMATCH

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ABSTRACT

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The tension between transformation policy goals and Army concepts to describe the transformed force on the one hand, and the limited funding resources available to implement those concepts on the other, appear to be developing a requirements-resource mismatch. The goals and objectives of the transformation rhetoric intuitively resonate with the military's increasingly technologic culture. Defense budgets fluctuate with changes in administration and perceived threats, but must remain within sustainable levels to avoid unwanted opportunity costs for the American society. This paper suggests that to implement a feasible transformation strategy within sustainable resource levels the Army must rethink its requirements approval process, and produce comprehensive implementation plans constrained by realistic funding and technology expectations. The primary recommendation of this paper is the need to link the planning and programming functions with a resource constrained implementation plan to inform the requirements approval process. The implementation plan needs to provide guidance to balance force recapitalization, modernization, and transformation initiatives across The Army. It must also synchronize the reductions in force structure with the realized fielding transformational capabilities.

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ADDRESSING THE RESOURCE REQUIREMENT MISMATCH

No matter where you turn these days in defense circles the touchstone topic is the military transformation initiative. While transformation is touted as being multi-dimensional and broad in scope, most of the discussion surrounding it seems to gravitate to equipping and organizing the force. As the Department of Defense (DoD) and Headquarters, Department of the Army (HQDA) attempt to articulate a vision to capture the capabilities required to meet an illusive future enemy, critics question transformation's affordability. If the concepts the Army develops to implement transformation are unaffordable, or not supported by technology maturity, a resource-requirements mismatch is generated. The resource-requirements mismatch generates logic inconsistencies during concept implementation. Those inconsistencies must be overcome by soldiers who are asked to do more with less. This adversely affects the soldiers' trust and confidence in the ability of senior army leadership to achieve the transformational goals of the Army's vision.

SCOPE

This paper will explore the Army's resource management system which plans for and funds Army programs to implement National Military Strategy and Transformation. The focus of this paper is Army centric, and will highlight common practices used within the Army's resource management system to accommodate balancing the plethora of Army requirements generated from its concepts and doctrine, and the limited resources available to execute them. To establish the environment in which the Army must develop its strategies and resource implementation of those strategies, the paper will address specific Department of Defense (DoD), Office of the Secretary of Defense (OSD), and Political (Congressional, Presidential) guidance and resource environment considerations.

PURPOSE

The tension between transformation policy goals and Army concepts to describe the transformed force on the one hand, and the limited funding resources available to implement those concepts on the other, appear to be developing a requirements-resource mismatch. The goals and objectives of the transformation rhetoric intuitively resonate with the military's increasingly technologic culture. Defense budgets fluctuate with changes in administration and perceived threats, but must remain within sustainable levels to avoid unwanted opportunity costs for the American society. This paper suggests that to implement a feasible transformation

strategy within sustainable resource levels the Army must rethink its requirements approval process, and produce comprehensive implementation plans constrained by realistic funding and technology expectations.

RELEVANCE

Maintaining the requirements-resource mismatch will lead to practices that are inefficient and compromise standards. As soldiers are asked to do more with less, they will accomplish the mission. The price will be an organizational climate within the Army that encourages taking shortcuts, compromising standards, selective disobedience, and inefficient practices as normative behavior. Over time, the mitigations soldiers employ to meet the unresolved demands placed on their time will become institutionalized. If this climate is institutionalized, the Army culture will grow accustomed to a lack of intellectual candidness, eroded institutional honesty and compromised soldier discipline. As the culture erodes, the institutional Army, responsible for the environment requiring the mitigating practices will lose the trust and confidence of soldiers and junior leaders in the field. Ultimately an Army that lacks discipline or loses the trust of its soldiers is in jeopardy of breaking its basic contract with the American people: to fight and win the nation's wars.

METHOD

This paper is laid out in three sections: the problem, the system, and recommendations. Section I explores political and OSD guidance which define and inform HQDA strategies and vision. This section highlights the fundamental expectations and characteristics of the Army's transformation plan and the capabilities-based approach the Army is using to determine what constitutes the force of the future and the concepts for its employment. It leads into an examination of the foundations of the requirement-resource mismatch by examining funding constraints which must be accounted for when forming implementation plans. Implementation plans must bridge the gap between resource unconstrained concepts development and the resource constrained programs required to implement them. Finally, this section assesses the current state of the force. The assessment concludes that the force is operating at a greater deployment cycle rate than the cold war force, and it is executing these missions with an aging fleet of equipment and a greatly reduced force structure.

Section II of the paper, The System, examines the Army's resource management system known as the Planning, Programming, Budgeting and Execution System. While the Army recognizes an execution element to its resource management system, it is not addressed in this

paper. This section is further subdivided into two parts: planning and requirement development, and programming and budgeting. The planning and requirement development portion deals with the creation of strategies and concepts which result in the publication of specific force structure and program requirements documents. The programming and budgeting portion examines the challenges and practices used to prioritize and resource those requirements. The section concludes with an assessment of potential mitigating actions to bridge the gap between capabilities based requirements and available resources.

Section III, Recommendations and Conclusion, offer recommendations to address the shortfalls presented in previous sections, and concludes with some final thoughts on the subject of balancing requirements and resources.

SECTION I: THE PROBLEM

ENVIRONMENT

Introducing his September 2002 National Security Strategy (NSS), President George W. Bush made the assertion that, "Defending the Nation against its enemies is the first and fundamental commitment of the Federal Government."[1] The NSS document went on to describe a need to transform the DoD by instituting better business practices at the corporate level, and integrating transformational capabilities in the field. At the same time, the NSS admonishes the DoD to maintain "near-term readiness and the ability to fight,"[2] across the "full range of concurrent military operations."[3] The purity and clarity of the assertion to defend the nation against its enemies provides focus to our efforts. Balancing the need for near-term readiness against potential adversaries while integrating transformational capabilities into the services place DoD implementers on the horns of a dilemma.

The NSS says we must build and maintain our defenses beyond challenge to meet the military's highest priority mission, defend the United States.[4] Following the cold war the U.S. Defense policy lacked the focus of a well defined enemy. Today the threats we face are still illusive. The NSS says, "America is now threatened less by conquering states than we are by failing ones. We are menaced… by the embittered few."[5] The terrorist attacks of September 11, 2001 provided some focus by identifying groups that we consider most dangerous, exposing our vulnerabilities, and identifying capabilities we need to counter this enemy.[6] While the enemies of the 21st Century are not monolithic, they do share characteristics and capabilities from which we can secure ourselves and develop strategies to counter.[7] As the Army pursues a process to define its role and the resources required to implement the NSS it must remember that the principle requirement of the military is to build sufficient strength and capability to decisively defeat an enemy, now and in the future.

Leadership guidance from OSD remains vague and superficial when suggesting ways to resolve the dilemma of balancing current readiness with modernization and transformation. Guidance regarding prioritization or the timing to accomplish these competing demands is also vague. At the same time OSD's public rhetoric suggests the military will pursue expanded engagement in Iraq, North Korea, and other hot spots around the globe, OSD is critical of the services slow progress on implementing Quadrennial Defense Review (QDR) transformation capabilities. The QDR 2001 calls for the development of standardized C4ISR, a common relevant operational picture of the battlespace for joint and combined forces, dramatically improved logistics decision support tools, and a transition to network-centric warfare.[8] In the absence of more definitive prioritization guidance, or a significantly expanded funding stream,

the services have chosen to resource the readiness of the current force and have relegated modernization and transformation to a more incremental approach.[9]

TRANSFORMATION

Our defense strategy recognizes two distinct motivations for transformation. The first is a desire to adapt our force to new and emerging sets of enemy capabilities. The second is the desire to maintain our dominance at the nexus of military and information technology. To address these two motivations, Joint Vision 2020 offers a conceptual shift to dominant maneuver, precision engagement, focused logistics, and full dimensional protection as a way to categorize our required capabilities at this nexus.[10]

The QDR 2001 professes the transforming power of exploiting new concepts and technologies as possessing the ability to render previous methods of war obsolete. It encourages the use of new technologies and the use of old technologies in new ways to achieve that revolutionary goal.[11] It states, "Transformation is at the heart of the new strategic approach."[12]

Transformation implies significant change, and a complete redesign of the force. As we work through the challenges of defining our enemies, exploring new capabilities, and implementing new concepts, it would be useful to take deliberate steps. We must constantly seek to balance our ability to meet current threats with our desire to transform.[13] The twin challenges of transformation and current readiness are not at complete odds. Calculated and deliberate infusion of transformational technologies and concepts offers several advantages, including:

- Improve current force readiness through increased reliability,
- New capabilities and methods tested before current capabilities and methods are abandoned,
- Integrated transformational technologies and concepts with current force technology and doctrine.[14]

CAPABILITIES BASED APPROACH

To achieve transformation objectives the QDR 2001 advocates a capabilities-based approach to planning and requirements development as a strategic tenet.[15] The shift in perspective, from the QDR 1997 threat based model to the current capabilities based model, opens the possibilities for defense planners to consider a growing range of potential adversary capabilities when developing equipment requirements, force structure requirements, and

employment concepts.[16] This unconstrained objective for the transformation vision offers tremendous flexibility for out-of-the-box thinking, but does little to focus energy, minimize redundancy, or inform prioritization.[17]

DEFENSE SPENDING – COMPETING DEMANDS

Transformation of the force is necessary, and it is at the heart of our defense strategy. However, there are other popular defense policy initiatives as well as larger public policy concerns that compete for limited federal resources.[18] Defense policy initiatives which compete for transformation dollars include modernization and recapitalization, the National Missile Defense (NMD) program and the expansion of U.S. Special Operations Forces (SOF). The impending MEDICARE/Social Security crisis, deficit reductions[19], and tax reductions are illustrative of public policy competitors.

The NSS emphasizes U.S. economic and diplomatic elements of power as the most important elements of power to secure and maintain the peace. Defense planners must constantly be aware that Congress will ultimately assign relative value to military prowess, economic prosperity, and diplomatic flexibility as ways to achieve national security by assigning them varying resourcing levels. As Congress distributes resources, they are reminded that the U.S. enjoys a world devoid of a peer competitor today. More importantly, there is no nation economically or industrially capable of becoming a near peer competitor in the next 20 years.[20] Defense policy makers and HQDA planners should carefully consider the historic example of the Soviet Union's collapse. In a vain attempt to match the U.S. economy's ability to sustain a significant military force, they crippled their own economy. Without a mechanism to balance the insatiable desire for greater military capability, defense planners could do what the Soviets could not cripple the U.S. economy.

Writing in 1999, James R. Schlesinger pointed out, "Present defense spending is at its lowest level as a percentage of Gross Domestic Product (GDP) since before U.S. entry into World War II."[21] In recent years we have seen an incremental increase in the DoD procurement spending levels. The 2003 defense spending is expected to be 3.1 percent of the GDP, well below the 8 percent GDP average we have enjoyed for the past 60 years.[22] The Quadrennial Defense Review 2001 congratulates the OSD for raising procurement spending to the $60 billion level, while conceding that it will take "…$100 to $110 billion per year to sustain today's force structure and arrest the aging problem."[23] As Congress attempts to find a balance between taxation levels and the need to sustain and modernize the current military force, OSD will engage in a dialogue to influence an increase in defense spending. As OSD pursues this

worthy activity they must remember that, even with the events of September 11, 2001, unless the Congress' support shifts decisively in favor of defense: increases to DoD's top-level procurement funding will likely be small.[24]

Finally, there is the argument regarding declining discretionary budgets and the associated competing political demands for those funds. An increasing number of "baby-boomers" are leaving the productive sector and tapping into the Social Security and Medicare benefit funds. Some experts, including Dr. Ippolito, believe that without substantial reform providing these benefits will stress the revenue base to such an extent that other discretionary spending (including defense) will be squeezed out sometime in the 2015-2020 timeframe.[25] While Dr. Ippolito's argument has merit in defining how future defense budgets will be even harder to defend, this paper is concerned with the historic budget trends that put the Army in its current situation, and the near-term budgets the DoD can expect to correct its shortfalls. The current $380 billion defense budget represents about 3.2% of the Gross Domestic Product (GDP).[26] When the anticipated congressional supplemental to fund the War on Terrorism and a potential conflict with Iraq are added, the total will likely exceed $400 billion. In 2001 our defense spending exceeded the next eight countries defense spending combined.[27] Next year's projected defense budget will nearly exceed the rest of the world combined.[28] Surely the Army can manage to field and train a credible force with our traditional 24-26% cut of that pie.

CURRENT STATE OF THE FORCE

There are three characteristics associated with the current force that bear on the requirements-resource mismatch that is setting the conditions for a negative impact on climate.[29] These characteristics are a decreasing force structure, an increase in deployment frequency and duration[30], and an aging fleet of equipment[31] as a result of tight defense procurement budgets.[32]

Following the cold war, army force structure was decreased to 480K. This force structure peace dividend stands in stark contrast to the nearly 300% deployment rate increase the army has experienced in the past decade. These deployment rates, combined with a NSS emphasis on Homeland Security (HLS), the War on Terrorism (WOT)[33], and forward deployment of forces are likely to increase demands on the force.[34]

The Army force structure today is populated with equipment procured, for the most part, in the 1970's and 1980s. "This equipment must be replaced on average every 28 years given its projected service life."[35] A significant amount of today's Army equipment needs to be replaced in the near-term.[36] Compounding the challenge of replacing or modernizing the force is the

need to provide the reserve components with the same capability as the Active Component force. In recent years, reserve component forces have been integrated into nearly every major Army deployment. Modernizing the active component and cascading displaced aging equipment is no longer acceptable on a large scale.

The extended use of military equipment with limited replacement, modernization, or recapitalization has an indirect impact on unit morale and long-term culture. Symptoms of maintaining an aging fleet at an increased deployment tempo that adversely affect morale and climate include:

- Lower equipment availability rates
- Higher incidence of failure
- Reduced planning flexibility due to maintenance and repair problems and
- Increased workloads and cost associated with an aging fleet[37]

The seriousness of the Army's situation is masked by modern historical success. It is worth noting however, that the QDR 2001 judged the current force structure and capabilities provided by our equipment as a moderate warfighting risk. The review also conceded certain combinations of warfighting scenarios and some smaller-scale contingencies as presenting high risk.[38] This situation will only become more serious as our enemies adapt and our equipment continues to age. Considering the state of the current force, the incremental increase to defense spending anticipated, in light of the previous discussion on competing demands, will do little to address the robust expectations of the NSS to modernize or recapitalize an aging fleet, meet deployment costs associated with the war on terror, and implement objective force transformation.[39]

SECTION CONCLUSION

The guidance the HQDA receives from OSD and Chairman of the Joint Chiefs of Staff (CJCS) is long on vision and short on practical prioritization, synchronization, or implementation direction. A NSS that calls for increased deployment tempo and introduces the expanding mission sets associated with a War on Terrorism, Forward Basing, and Homeland Security may actually require an increased Army end-strength and its associated expense. To maintain readiness the Army needs to recapitalize, replace, or modernize its fleet in the near-term. At the same time, OSD is pressing the Army to transform even faster than it currently is. Balancing the competing demands of recapitalizing the majority of the current fleet, selectively modernizing across the force, transforming a portion of the force to objective capabilities and maintaining the Army's current end-strength is a tall order in light of recent defense budgets.

If the Army continues to develop capabilities based transformation concepts, without relief from policy demands or increased resources, it is likely to continue experiencing a degraded current readiness capability and a disjointed transformation effort. While senior leaders in the institutional Army are correctly focused on the future, junior leaders in the field are forced to accomplish their missions with aging equipment and shrinking force structure. If the mismatch between requirements and resources is left unchecked, it will foster mistrust between junior leaders in the field, and senior leaders in the institutional Army. Over time this mistrust and the ever increasing need to do more with less will have a detrimental affect on Army moral and culture.

SECTION II: THE SYSTEM

PLANNING, PROGRAMMING, AND BUDGETING SYSTEM (PPBS) OVERVIEW

After the NSS, National Military Strategy (NMS), and Joint Vision (JV) 2020 have been published the Office of the Secretary of Defense (OSD) provides the services with Defense Planning Guidance (DPG). The DPG provides upper level guidance for planning, and very general guidance on prioritization for programming.[40] As M. Thomas Davis observed in an article written for Business Executives for National Security, many who have worked with the PPBS system over time criticize the OSD for providing too little in the way of detailed objectives and realistic guidance in the planning phase of PPBS.[41] Without sufficient guidance up front, the rest of the process lacks focus and evaluations of the services' products become subjective.

Culturally, the Army is not disposed to wait on clarification before seeking solutions in the face of these systemic challenges. The Army attempts to incorporate guidance from multiple sources and internally establishes priorities for planning and programming. The result of this effort is recorded in the first two sections of The Army Plan (TAP). Acknowledging that decisions made during the planning cycle have a profound impact on resources, TAP admonishes the Army to maintain a disciplined approach to requirements determination and approval as it transforms from the current to an objective force.[42] The Army uses the PPBS to facilitate the resource management function.[43] The Army adds an execution assessment function to the PPBS process, but this paper will only address the four basic functions of PPBS: strategic planning to predict the future strategic environment, resource allocation to assign assets, program integration to analyze mission shortfalls and suggest alternatives, and budget formulation to produce an annual budget.[44]

THE PLANNING SYSTEM

There are two distinct but related elements to the Army's force development planning process. The first deals with force structure, the second deals with programs. While programs include a wide range of acquisition, training, infrastructure, logistics, and manning issues this paper will focus on equipment acquisition programs. The primary resource constrained process that informs the Army's PPBS process regarding force structure requirements development and validation is the Total Army Analysis (TAA). The resource constrained decisions on acquisition program requirements are guided by the Army Modernization Plan (AMP).[45]

There are two interrelated factors which determine the size of the force, they are the total number of units making up the force and the internal structure or composition of those units. The TAA is a computer-aided iterative process that determines the number of units that make

up the force. The total number of units required in the force is an aggregate of the operating forces and generating forces. The operating forces are the divisional and non-divisional combat forces specified in the Defense Planning Guidance. The generating forces are those forces necessary to support and sustain the operating forces. The Training and Doctrine Command (TRADOC) also influences the internal structure of units through a process known as the Force Design Update. The interplay between these processes allows the Army to manage the number of units, the composition of those units and the capabilities resident in those units across the operating and generating force. Within the TAA process those organizational design and structure decisions are balanced against available resources through the Force Feasibility Review. Conversely, the material acquisition side of the requirements generation process lacks a robust resource constrained processes like the TAA process, in the planning stage.

The Chief of Staff, Army (CSA), in an attempt to restore fiscal discipline to the program requirement's approval process[46], pulled the authority for requirements validation up to the HQDA from TRADOC. In addition, during the HQDA staff reorganization he created a Directorate of Requirements (DAMO-RQ), Office of the Deputy Chief of Staff (ODCS), Operations and Plans (G3). The roles and missions of the new Directorate of Requirements are evolving. The Director of Requirements works directly for the Deputy G3. It assists him in analyzing the concepts and requirements being generated by TRADOC with funding and technology constraints informed by the ODCS, Programs (G8). The Directorate of Requirements also represents the DCS G3 during the PPBS process by following programs through the programming and budgeting process to ensure concept required critical capabilities are funded and not diluted as they encounter the resource constrained trade-offs of the budgeting process. The new Directorate also runs the staffing process leading up to the Army Requirements Oversight Council (AROC) and the Joint Requirements Oversight Council (JROC), the final authorities on program requirements approval on the Army and Joint Staff respectively.

Despite these efforts by the CSA, the first time program requirements face a robust systemic resource constraining process is during the programming stage. Early in the programming process the ODCS G8 staffs and publishes the Army Modernization Plan (AMP). The AMP is a definitive resource and technology-constrained assessment of program requirements. In the acquisition process, the AMP is the first resource constrained document that informs the program side of the PPBS.

Warfighting experiments and simulations play a critical role in the requirements determination process at all points during planning. Each of the proponent schools use battle

labs to assist them in testing capabilities and structures presented to TRADOC during Force Design Updates (FDUs). TRADOC uses Army Transformation Wargame simulations to test and validate concepts resulting in the publication of the TRADOC PAM 525-xx series. The Army staff uses the Center for Army Analysis (CAA) simulation modeling to provide quantitative analysis during the TAA process to compare alternatives and inform senior leader structure decisions.

Analysis

To assess risk in the current planning process, the paper will use a modified feasible, acceptable, and suitable (FAS) rubric. The objective of the analysis is to determine if the concepts and requirements generated from the planning process successfully balance creative thinking with fiscal pragmatism.

Acceptable

The planning process meets acceptability criteria because it achieves the strategy requirements and guidance of the NSS, NMS, JV2020 and DPG. This favorable assessment is offered with three serious caveats. At the operational level, a campaign plan that attempts to account for all possible enemy actions is seldom executable. It is reasonable to assume that the same logic applies to the strategic level of concept development. However, at the corporate strategic level there is no apparent construct that limits the capabilities modeled during the development of concepts. Capabilities are infused into concepts to account for all possible enemy capabilities to be countered. Very little balance is offered in the way of assessing the probability an enemy can achieve the countered capability for either technical or resource constrained reasons. The second caveat involves the ability of the concepts to remain internally consistent once they encounter resource constraints. There is a requirement to continually verify requirements, and make regular adjustments to the plan to account for new realities. If the funds are not available to field synergistic capabilities, the logic that underpins the concepts breaks down. The final caveat addresses the current practice of implementing major annual/biennial guidance course corrections. Major changes to the strategies, guidance, or concepts underpinning the plan should only be made when the world environment changes significantly enough to invalidate the current plan. If the concepts are constantly changing or based on unrealistic technology maturity expectations and resource assumptions, they are irrelevant.[47] Unrealistic plans lose credibility with soldiers and junior leaders, and senior leaders ignore them.[48]

Suitable

Suitability is a judgment call on the part of the political and joint leadership. The political and joint leadership produce the strategies and guidance which the Army's concepts and requirements are supposed to meet. The Army cannot look inside itself to evaluate the suitability of the concepts and requirements it produces. The political and joint leadership that set the bar must determine if the Army's concepts and requirements achieve the desired result. Those leaders don't seem to think we are on the right track.

OSD and CJCS criticism is not directed so much at the Army's concepts and plans, as with the end products they produce. The Army's thinking is criticized for being parochial, its strategies are criticized for being arbitrary, and its budgets are criticized for being inconsistent with strategy.[49] This external assessment could mean one of two things: the criticism is valid, or we are not explaining our road map to implement the concepts we offer well enough.

Feasible

The TAP admonishes the Army to validate operational requirements in terms of capability and feasibility continuously as we transform.[50] To assess feasibility we will consider both force structure and equipment program requirements.

The Operations and Support (O&S) account (which includes pay, benefits, and Operations and Maintenance (O&M) costs) has maintained a relatively stable average consumption of the DoD budget in a band that has ranged from 60-70 percent since 1955. In recent years, savings generated by end strength personnel reductions have been offset by increased O&M costs generated by aging infrastructure and equipment. While end strength numbers are sustainable today, O&S costs are slowly increasing. Without recapitalization of infrastructure and equipment, O&M costs will continue to squeeze resources from force structure or procurement accounts.[51]

If military pay, a non-negotiable budget item, is factored out of the equation, the Army funds 55% of its remaining requirements.[52] Regardless of how creatively that unresourced requirement is distributed across programs, implementation of required capabilities is bound to be inconsistent with the underlying concepts. This significant unfunded requirement indicates the Army's concepts are not achievable within current resource constraints.

Clearly, Army concepts are out of step with available resources. Les Aspin asserted that a threat-based approach to force planning is the only reliable method available to determine how much is enough.[53] Determining how much funding is enough without a defined threat is a

challenge. Determining how much is too much to plan for, considering all the competing demands for federal dollars, is no less daunting. There are alternative approaches to determining appropriate funding in the absence of a defined threat.

The alternative approach to the extremes of means-driven ends and totally unconstrained ends (in the form of requirements) delivered to programmers and budgeters, is a resource constrained implementation plan. During the planning process concepts must be translated into resource and technology constrained ways before formal requirements are approved. This implementation plan must be very pragmatic through the future years defense plan (FYDP) and extended planning program (EPP) years. What is missing in the current planning process is an informed method to achieve resource-constrained ways (an implementation plan) to achieve objective ends (concept capabilities) during the planning process. The metrics to determine the funding range to plan against is discuss in the programming section.

The Objective Force Task Force (OFTF) is working along these lines, but the scope of this effort is too narrow to achieve the complete result. The OFTF is responsible for integrating the various elements the Transformation Campaign Plan, with the ultimate goal of transforming the Army over 30 years.[54] The OFTF does not address the competing challenges of replacement or recapitalization of the current force as we march down the road to transformation. A resource constrained implementation plan needs to address the balance between replacement, recapitalization, modernization, and transformation. It must also synchronize force modernization upgrades, and the force structure trades usually offered with achieving those advanced capabilities.

TRADOC's concepts don't represent fiscally realistic alternatives. There is currently no systemic process in the planning stage to develop an internally consistent, resource constrained implementation plan for material programs. Further, there is no process during the planning stage that adequately links force structure and program decision execution. In some critical capabilities[55] the lack of available resources and technology will likely jeopardize the modeled concepts internal consistency. As a result, TRADOC's concepts do little to inform senior leader decision making in the resource management process. Worse, the resource-requirements mismatch generated by concept implementation inconsistency affects the trust and confidence of soldiers in the ability of senior army leadership to achieve the transformational goals of the Army's vision.

PROGRAMMING AND BUDGET

The HQDA Staff, combines the programming and budgeting phases.[56] The three documents that codify decisions made over the iterative process of each programming-budget cycle are the Program Objective Memorandum (POM), Budget Estimate Submission (BES) and President's Budget (PresBud). The Directorate of Program, Analysis and Evaluation (PA&E) in the DCS G8, publishes TAP Section III, Army Program Guidance Memorandum (APGM) as an end to the planning phase and to start the programming and budgeting process.

Historic Weakness

To be effective the programming process requires program discipline and realistic assessments, and must provide feedback to the requirements validation process. Historically, the Army has underestimated the demands of procurement on the future budget. This occurs because long-range procurement budgets are based on unrealistic assessments and faulty assumptions.[57]

Program budget assessments often rely on overly optimistic assumptions[58] regarding total procurement costs, production volume, delivery schedule, production rate, technology maturity, and cost growth for less visible procurement end-items.[59] These optimistic, best-case, estimates generate reactive programming and budgeting drills which foster inconsistencies of logic during concept implementation.[60]

Funding: How Much is Enough?

Whether defense budgets are too low is both a military and political judgment. Current Army budget estimates are based on a compilation of the program costs of individually considered efforts across Management Decision Package (MDEP) accounts. Robert Zoellick, of the Center for Strategic and International Studies (CSIS), offers three pragmatic alternatives to estimate future procurement budget demands: current replacement value, annual depreciation cost, and generational procurement unit-cost growth rates. "This estimation approach often produces long-range projections very different from those prepared by the military departments, which routinely and consistently underestimate future procurement budget demands."[61] A more holistic approach to estimating future procurement budget demands, consistent with one of the standard business practices Robert Zoellick highlights, may produce a better estimate than the current program roll-up. At a minimum, determining what these required resources are would be a valuable tool to alert senior army leadership when the results from the current system may be incomplete or based on false assumptions.

In 1999, Robert Zoellick reported to the congressional budget committee, that a defense budget representing 3.0 percent of Gross Domestic Product (GDP) would not sustain the current force structure.[62] The CSIS estimated an annual defense budget equating to about 4.0 percent of the GDP would be required to fund DoD for the next 20 years.[63] Once the 60-70 percent average O&S costs are taken out, the remaining 30-40 percent of the defense budget offers the trade space available to pay for transforming or modernizing the current force.

As M. Thomas Davis points out, because the standard of military success (battle) occurs infrequently, determining how much is enough is a difficult task.[64] Having said that, the Army could build an implementation plan estimating a defense budget ranging between the current 3.1 percent GDP as a base, and the CSIS estimated demand of 4.0 percent GDP as a surge ceiling. Basing the recapitalization, modernization and procurement plan on 30% of that defense budget forecast would go a long way to offering resource guidelines to focus service planning and programming.

Funding: How Much is Too Much to Expect?

Defense is unlikely to grow to the 4 percent of GDP identified earlier as a reasonable demand estimate ceiling. The baseline demand estimate of 3.1 percent of GDP may be too much to expect beyond 2010 when the cost of the estimated Social Security and Medicare burdens are expected to consume over 10 percent of the GDP revenue ceiling.[65] This is significant when considered against the fact that even during the height of World War II, the revenue-GDP level never exceeded 21 percent.[66] This would seem to indicate that the American people will be unlikely to accept a revenue (tax) rate that would break this apparent ceiling of 21 percent of GDP. In 2002 the defense budget is $330.6B. This represented ~3.1% of the GDP.[67] If the DoD can't afford to program the force on an estimated 3.1 to 3.5 percent GDP, it can't afford the plan.

To ensure a balance is maintained between defense and political sensibilities, it is critical that the HQDA ensure the POM process retain its requirements-based character. To ensure the programming and budgeting[68] functions don't invalidate the concepts driving the requirements, the requirements must continually be scrutinized and updated.[69] If the mismatch between reasonable resource estimates and approved requirements grows beyond the programmer's ability to bridge the gap, during the FYDP and EPP, there needs to be a feedback mechanism reexamining the validity of the underlying strategies and concepts.[70] Currently, there doesn't seem to be any formal feedback mechanism to constrain TRADOC concept and requirements

developers when the plans they produce are determined to be unaffordable in the programming-budgeting process.

Analysis: Systemic Practices that Breed Mistrust

Systemic mitigating practices used to address the growing gap between requirements and resources breed mistrust between the field Army and the institutional Army. A Directorate of PA&E brief to the DCS G8 in October 2002 entitled "Resourcing the Future", called for continued investment in transformation, while supporting the war on terrorism through the 04-09 POM. The Directorate of PA&E acknowledged that these two initiatives are at odds within current resource constraints. The briefing highlights that, contrary to readiness funding rhetoric, the Fiscal Year (FY) 03 budget supporting readiness is resourced at FY 01 President's Budget (PresBud) Future Years Defense Program (FYDP) levels, despite the fact of increasing deployment rates.[71] Inadequate programming for readiness adversely affects the Army's modernization effort. When faced with the current reality of deployments or combat, senior leaders correctly reallocate funding to ensure readiness. In September 2000, during testimony before the House Armed Services Committee, General Eric K. Shinseki said, "…we have for years mortgaged our future readiness – our modernization programs – in order to assure that our soldiers had, in the near-term, what it takes to fight and win decisively…".[72] What is different today is that the Army is facing an increased likelihood of further deployments and the prospect of insufficient defense budgets to recapitalize our aging fleets as we transform. As the Army attempts to balance the competing demands of all military requirements, in all theaters of operation, it may find itself on a course that could lead to preparedness failure.[73]

It is critical that the Army examine the historic work-arounds and other actions it has taken when faced with a choice between modernization and readiness. The Army must further explore alternative ways of dealing with the requirements-resource mismatch. Despite the priority placed on readiness, budget constraints and competing priorities resulted in under-funding spare parts, ammunition, and training accounts.[74] In the equipment programming arena, the army has terminated and restructured programs[75] that are essential to the internal consistency of the modeled concepts they are based on. The 04-09 POM is reported to have terminated 24 systems to realize a savings of $13.9B.[76] In addition to the cancellations, the 04-09 POM is expected to restructure another 24 programs to generate $8.6B in savings.[77] These system terminations and modifications eliminate the capabilities that provide logic consistency within the concepts they support. A more disturbing practice is the masking of risk when force structure is traded for transformational technology. Force structure or platforms are cut in

anticipation of the fielding of modeled synergistic capabilities provided by transformational technology systems. If the capability is not funded or the implementation technology does not mature, there is no record of the accepted risk. In the worst case, because program acquisition is delayed due to under-funding, OSD pressures the service to take credit for the infusion of the new capability twice: once when the structure is traded, and again when the system is fielded.[78] The result of under-funding these equipment systems undermines the logic of the concepts that underpin the requirement, and creates an ever increasing bow wave of unfunded requirements in the POM and EPP over time.[79] Soldiers and junior leaders are forced to overcome the equipment deficiencies, and concept inconsistencies. These practices often have a negative impact on readiness and morale, especially when it comes to the maintenance and logistics functions.

While these destructive practices will no doubt continue for a variety of pragmatic and political reasons, their use must be curbed. The Army can not afford to mortgage its future to maintain current readiness. By the same token, senior Army leaders cannot ask soldiers to deploy without providing them all the tools, training, and supplies required to accomplish the mission they are sent to complete. In the environment of stable or incremental increases to defense budgets, the Army remains faithful to the current deployment environment and to transformation as a path to fulfilling our long-term NSS obligations. The solution to balancing the requirements-resource mismatch must be found in some other approach, or we must revisit our ability to faithfully pursue the current path. What we cannot do is pursue a course that risks America's future.[80]

Programming Trade Space: Mitigating Actions

In 1998 the DoD estimated it had 23 percent excess base capacity at 259 major military installations.[81] At that time, this excess capacity represented $3.6B in annual savings. It takes an average of seven years from a decision to close a base until net savings are realized. At first glance, closing excess bases would seem like a straight forward decision to a business or military decision maker. However, as far back as 1999 Daniel Goure and Jeffrey M. Ranney, from The Center for Strategic and International Studies, point out, "…in the context of a $280 billion annual defense budget, many members of Congress do not believe an estimated recurring annual savings of $3.6 billion is large enough to justify the political costs they must endure when they cast a vote for base closure, especially when their states or districts are involved."[82] None-the-less, the Army should continue to pursue base closures and keep an eye out for alternative benifits to satisfy congressional sensibilities.

The Army pursuit of better business practices to generate savings has been reenergized by Secretary of Defense Rumsfeld. In the QDR 2001 the OSD said, "Transformation applies not just to what DoD does, but how DoD does it. DoD's business processes and regulations seem to be engineered to prevent making any mistakes. By doing so, these regulations often discourage taking any risk."[83] The Army must rewrite these regulations to encourage business models that trust experienced programmers and budgeting leaders to make decisions. The Army must mature business practices that hold decision makers accountable, compress decision making bureaucracy, reduce the need for extensive and redundant study, and underwrite honest mistakes. This type of empowerment will go a long way to reducing costs. Empowerment will also speed the decision making process, and accelerate the integration of new technologies and operational concepts into our fighting forces.

The Secretary of the Army has led the effort in identifying better business practices to make funds available. As of 13 Nov 2002, "The Secretary of the Army has approved a total of 35 initiatives under the Army's Business Initiatives Council [BIC]. A number of the initiatives have been submitted through the formal DoD BIC process for implementation across the services and other DoD activities."[84] One of the most important incentives imbedded in the BIC philosophy is that savings will be retained by the organization that executes the initiative. This philosophy is intended to encourage the Army to generate funding and personnel savings through innovative proposals with the expectation that those savings will be sunk back into Army Transformation.[85]

A more controversial initiative involves outsourcing non-core competencies. The debate is seldom over the initiative, but defining the non-core competency. This is particularly difficult when an attractive capability exists in the civilian sector that is also applicable to the warfight. If a function directly contributes to the warfight, DoD owned resources can be focused on achieving excellence in them. All other functions will be contracted out to those who can provide excellence in service to DoD.[86] Critics argue that this initiative has limited value, and hidden risk. Their concern is that in very important ways, the Army is unlike business. The Army does not choose the missions it must perform, or the environments in which it must perform them. If OSD is not successful in getting someone else to do the non-core mission in all situations, soldiers will again be asked to do more with less.

Dr. Steve Cambone, former Director, Programs Analysis and Evaluation (PA&E) for the OSD has talked about streamlining the program review, budget review, and budget submission process to avoid the internal inconsistencies caused when iterative decisions on programs are made without the full knowledge of the rational for making a decision in an earlier round.[87] Late-breaking large issues, congressional marks, and issues deferred during DPG preparation affect

the budgeting of the programmed strategy.[88] These issues are then addressed in Program Budget Decisions (PBD). "Although PBDs are only supposed to deal with the budget year…, inevitably they impact across the program years. This can… have the impact of altering and even reversing decisions previously made in the program review phase."[89] By streamlining the process Dr. Cambone hopes to reduce decision inconsistencies generated during the programming and budgeting prioritization process that make the resultant product internally inconsistent. HQDA consolidates programming and budgeting to reduce the likelihood of these internal inconsistencies. Dr. Cambone has essentially adopted that system for DoD by combining the programming and budgeting submissions. While the truncation of the process may align decisions, it also compresses the time available to analyze the impact of decisions taken. A particularly destructive practice is making decisions after the PresBud is submitted. This practice does not allow any reflection or feedback on second and third order affects to other programs and interdependent decisions. A recent example of this practice is the cancellation of the Crusader field artillery system. The program was cancelled after the programming and budgeting deliberations had been completed and the proposed PresBud had been delivered to the White House by the OSD.

SECTION CONCLUSION

Savings or cost avoidance may be realized by rooting out fraud and waste, implementing better business practices, closing bases, or pressing congress for more money. It is unlikely we will find even a significant portion of the CSIS estimated defense growth of $135B[90] savings (or cost avoidance) in a $330.6B defense budget. It is equally unlikely, and probably unwise, to expect a reduced deployment tempo based on an expectation that U.S. security policy will migrate to a more isolationist temperament. It is more likely that the Army will need to combine cost savings measures with belt tightening measures. A workable solution will require the Army to make progress on all fronts. Limited success across the board may result in savings and revenue to meet the Army's needs. If it doesn't, we must revisit the implementation plans we are pursuing to achieve our objective transformational capabilities. Currently those plans are being adjusted, and in some cases formed, by a relatively small group of decision makers who must pragmatically come up with a solution. The growing resource-requirements mismatch is leaving those programmers responsible for maintaining an internally consistent path to the future with no reasonable options.

SECTION III: RECOMMENDATIONS AND CONCLUSION

PLANNING RECOMMENDATIONS

The primary recommendation of this paper is the need to link the planning and programming functions with a resource-constrained implementation plan to inform the requirements approval process. The TRADOC should develop an implementation plan road map to guide the programming process from current force to final concept implementation with internally consistent capabilities and force structure milestones. The Directorate of Requirements (DAMO-RQ) and the Directorate of Force Management (DAMO-FM), Office of the DCS G3, should recommend equipment and force structure requirements approval/validation based on that constrained implementation plan, not the unconstrained concept. Every two years a TRADOC hosted panel should adjust the roadmap based on programming feedback. The DAMO-RQ and DAMO-FM could then co-chair an annual Implementation Plan Task Force (IPTF) validation council for the DCS G3 to reconcile all equipment, force structure, training, personnel, and logistics requirements, and recommend approval or adjustment to the implementation plan. The implementation plan should be developed by a standing matrixed organization, along the lines of the Aviation Transformation Task Force or an Integrated Concept Team (ICT). The Implementation Plan Task Force (IPTF) would be tasked to assess the TRADOC plan, and ensure TAA force structure and AMP program capabilities timelines align. The IPTF would also inform senior leader requirement validation at the AROC and JROC to link unconstrained concepts to constrained requirement validation and programming. Finally, the IPTF would function as the Army's liaison to the Joint and OSD staffs to coordinate for required joint service capabilities and defend Army concept implementation initiatives

The implementation plan needs to provide guidance to balance force recapitalization, modernization, and transformation initiatives across The Army. It must also synchronize the reductions in force structure with the realized fielding of transformational capabilities. The implementation plan should provide sufficient guidance to ensure internally consistent capability infusion to the fielded force with medium to low risk through the EPP years. It should contain sufficient guidance regarding fielding synchronization of logical interdependent capability sets to inform programming synchronization. This will likely take the form of force-wide block upgrades or in-stride modernization and transformation strategies.

The plan must clearly state assumptions regarding joint capabilities required by the Army to implement its plan, with associated synchronization timelines. These assumptions can be used to influence OSD and CJCS guidance to other services as those agencies review and approve FYDP and budget submissions. The plan should not be designed to provide perfect resolution

on program schedule, cost, and capability. That is a programming function. Rather, it should provide sufficient resource and technology prudence to afford programmers a high probability of fielding a force capable of employing the capabilities and concepts underpinning the requirements. In today's environment there are three elements which should be considered in determining how much capability and force structure is enough in the development of the implementation plan: the ability of a potential enemy to develop a capability we must counter, the ability of the U.S. economy to absorb the development and fielding of a capability set, and the ability of a technology to mature to meet the fielding timeline.

PROGRAMMING RECOMMENDATION

Establish a 3 percent annual real growth cap on Army spending for programming through the Extended Planning Program (EPP). Require programmers to develop viable programs within those resource caps using only technologies which have moved into a Research and Development maturity metric that supports fielding within the EPP. The Directorate of PA&E, ODCS G8 and Directorate of Prioritization (DAMO-ZR), ODCS G3 then co-chair programmatic oversight and prioritization, and recommend funding options within prescribed limits over the POM and EPP. This approach has already disciplined programming over the POM years. It is one of the greatest strengths of the PPBS system. It should be extended into the EPP to bring some discipline to the bow wave phenomenon.[91] Allowing for 3 percent per year annual real growth would quiet the critics who are concerned about prematurely imposing means driven ends to the out-years.

The Army must develop a feedback system to the planning process that directs the re-evaluation of concepts, while initiating a process that results in the publication of a resource constrained, internally consistent, implementation plan to inform requirements approval decisions. Even if the unconstrained concept is validated, it is critical that we bring the resource-constrained path to the mid-term objective (through the EPP) into clearer focus.

GENERAL RECOMMENDATIONS

The institutional Army owes it to the leadership in the field to provide a better understanding of both the PPBS and force development processes, and the issues currently being debated among the Army's senior leadership. The Army must educate junior leaders through formal education and professional journals about the issues, methods, and vision of the Army as we pursue relevance within the construct of QDR and JV2020. The Army is committed to transformation. Its corporate leadership is savvy in working the Army's internal PPBS and

Force Management processes as well as the external Joint, Secretariat, and Congressional processes to achieve their transformational goals. Above all, they are committed to the defense of the nation and the soldiers who sacrifice to ensure that defense. A clear understanding, by junior Army leaders, of the Army's processes through the formal education system, combined with a robust dialogue in the Army's professional journals, would afford junior leaders a better understanding of the challenges and complexities faced by the Army's corporate senior leadership as they balance the impacts of resourcing decisions.

Much has been done to uncover and correct the shortcomings in the systems that cause the organization to suffer. Even more has been done through inspired decision-making and visionary leadership to maintain the U.S. Army as the preeminent ground force in the world. While more needs to be done, and always will, a more robust open dialogue in professional forums would curb the mistrust that is spawned by misunderstanding. Officers need to be exposed to the organizational Army's history and resource management systems as early as the captain's career course. It is only possible for them to participate in and understand a robust professional dialogue if they are familiar with the decision-making environment, process framework, and the specific issues Army decision makers are facing.

The Army should continue to rigorously explore all possibilities to increase the Army's top line funding. Internally, the Army must establish more efficient business practices, and weed out expenditures which do not support the overall strategic direction. Externally, the Army must present a logical case to congress explaining its strategy and the need to act before the anticipated competing priorities of Social Security and Medicare increase. To develop that logical argument, the Army's senior leadership should focus the efforts of the institutional Army on what we are actually doing, specifically the programs and initiatives outlined in the resource constrained implementation plan. With the exception of a few forward thinking organizations (notably TRADOC's Concepts Development Directorate, the Army Science and Technology Board, and the Defense Advanced Research Projects Agency) institutional staffs should concentrate their efforts on the implementation plan to produce higher quality products to support the Army's position.

CONCLUSION

The preceding analysis is not meant as a condemnation of force management or PPBS processes. Nor is it intended to deride the decisions of past Army leadership. In fact, the system, for all its flaws, has produced an amazingly capable Army that is internationally recognized as the preeminent ground force in the world. The vision and adaptability of our most

senior Army leadership is directly responsible for this result. The paper highlighted pertinent changes to our current environment. It encourages the Army's senior leadership to take action to further improve the institutional decision making systems and address the growing requirements-resource mismatch.[92] This is only a pessimistic outlook for the Army if we are complacent. If we are complacent in the face of this growing challenge, Army's leadership will lose soldier confidence. We must view our vulnerabilities and limitations with an unblinking critical eye. If the Army ever becomes satisfied with its dominance on the world stage, it will be tempted to coast. If that happens, we will fall victim to the old adage - If you are coasting, you can only be going downhill.

WORD COUNT = 8824

End Notes

[1] George W. Bush, A National Security Strategy of the United States of America (Washington D.C.: The White House, September 2002), Preface page by President George W. Bush.

[2] Ibid., pg iii and 30.

[3] Richard B. Myers, National Military Strategy of the United States of America (Pre-decisional Draft) (Washington, D.C.: Joint Chiefs of Staff, 19 September 2002): pg iii.

[4] Bush, 29. "We must build and maintain our defenses beyond challenge. Our military's highest priority is to defend the United States. To do so effectively, our military must: [paraphrased] assure friends, dissuade competition, deter threats, and decisively defeat enemies."

[5] Ibid., 1.

[6] Condoleezza Rice, "Dr. Condoleezza Rice Discusses President's National Security Strategy," 1 October 2002; Available from <http://www.whitehouse.gov/news/releases/2002/10/20021001-6.html>; Internet; Accessed on 15 November 2002. Condoleezza Rice, talking about American and European commitment to liberty said, "…being the target of trained killers is a powerful tonic that makes disputes over other important issues look like the policy differences they are…" This profound wisdom can be applied to local "American" politics and have as much applicability.

[7] Ibid. In a speech to an audience in the Waldorf Astoria in October 2002, Condoleezza Rice, the president's national security advisor put it this way, "The fall of the Berlin Wall and the fall of the World Trade Center were the bookends of a long transition period."

[8] Henry H. Shelton, "Quadrennial Defense Review Report," 30 September 2001; available from <http://www.defenselink.mil/pubs/qdr2001.pdf>; Internet; Accessed on 11 September 2002: 35-37.

[9] Myers, iv. "The Joint Force will take an 'in-stride' approach to transformation that will more rapidly integrate select new technologies, operational concepts, and organizational improvements while driving toward comprehensive longer-term goals."

[10] Henry H. Shelton, Joint Vision 2020 (Washington D.C.: U.S. Government Printing Office, June 2000), 2.

[11] Shelton, "QDR 2001": 29.

[12] Ibid., 14.

[13] Ibid., 14. "…it would be imprudent to transform the entire force all at once. A balance must be struck between the need to meet current threats while transforming…";

[14] This hybrid force (transformed and integrated current) will go a long way to satisfying our allies and coalition partners that we are not leaving them behind.

[15] Shelton, "QDR 2001": iv and 13. "A central objective of the review was to shift the basis of defense planning from 'threat-based' model that has dominated thinking in the past to a 'capabilities-based' model for the future."

[16] Ibid., 17.

[17] Paul Wolfowitz, "Testimony delivered before the Senate Armed Services Committee on Military Transformation," 9 April 2002; Available from <http://www.defenselink.mil/speeches>; Internet; Accessed on 26 September 2002. In the transcript delivered to the SASC on Military Transformation Sen Jack Reed (D-RI), said—"…there is a real danger I think (in saying) we have to build whatever we can build, because someday we will need that capability… And there is a limited amount of resources we can devote, even in this time of great danger to the country."

[18] Daniel Goure and Jeffrey M. Ranney, Averting the Defense Train Wreck in the New Millennium (Washington, D.C.: The Center for Strategic and International Studies Press, 1999), 68. "… the 43rd president and 107th Congress will be faced with the larger public policy issue of how best to balance the competing budget demands of the nation's financial security, social security, and national security programs."

[19] Dennis S. Ippolito, Budget Policy and Fiscal Risk: Implications for Defense (Carlisle Barracks, PA: U.S. Army War College Strategic Studies Institute, September 2001), 2. "Fiscal constraints have forced defense to absorb a disproportionate share of the deficit-reduction burden over the past decade."

[20] Goure,16. "…there are no peer competitors today or in the foreseeable future because no nation was willing, or possessed the means, to spend anywhere near the levels spent by the United States on military capabilities during the past 25 years."

[21] Ibid., xii. From forward by James R. Schhlesinger

[22] Shelton, "QDR 2001": 57.

[23] Ibid., 68.

[24] Ippolito, 25.

[25] A detailed presentation of this argument is contained in:
Dennis S. Ippolito, Budget Policy and Fiscal Risk: Implications for Defense (Carlisle Barracks, PA: U.S. Army War College Strategic Studies Institute, September 2001).
Dennis S. Ippolito, Federal Budget Policy and Defense Strategy (Carlisle Barracks, PA: U.S. Army War College Strategic Studies Institute, 15 February 1996).

[26] U.S. Congressional Budget Office, "Current Budget Projections" and "Current Economic Projections," December 2002; Available from <http://www.cbo.gov>; Internet; Accessed on 5 January 2003. Figures derived from Congressional Budget Office budgets and economic projections.

[27] ABC News, "Defense Cuts Loom: Bush Administration Readies Budget Axe," 15 August 2001; Available from <http://abcnews.go.com/sections/wnt/DailyNews/mcwethy010815.html>; Internet; Accessed on 20 November 2002.

[28] Peter Preston, "Spending Spree at the Pentagon," New York Times, 10 February 2003, sec. A, p. 22.

[29] For a review of the resource mismatch see:

Carl Conetta, "The Pentagon's New Budget, New Strategy, and New War," 25 June 02; Available from <http://www.comw.org/pda/0206newwar.html>; Internet; Accessed on 11 September 2002.

Andrew Krepinevich, "The Bush Administration's Call for Defense Transformation: A Congressional Guide," 19 July 2001; Available from <http://www.csbaonline.org/4Publications/Archive/H.20010619.The_Bush_Administ>; Internet; Accessed on 11 September 2002.

Michael E. O'Hanlon, "Modernizing and Transforming U.S. Forces: Alternative Paths to the Force of Tomorrow," QDR 2001: Strategy-Driven Choices for Americas Security, (Washington, D.C.: National Defense University Press, 2001).

[30] Goure, xi. – Fwd by James R. Schhlesinger

[31] Ibid., .126.

[32] Robert Wall, "Larger Pentagon Budget Boosts Select Technologies," Aviation Week & Space Technology, 6 (10 February 2003): 62-63.

[33] Shelton, "QDR 2001": 48. "In light of the markedly increased requirements associated with the unfolding U.S. war against terrorism, prior estimates of available resources for defense are no longer accurate."

[34] Goure, 46.

[35] Ibid., 126.

[36] Ibid., 13. "Senior defense officials consider this [deferred acquisition accounts] to be an acceptable risk on the basis of their overly optimistic expectations about the capabilities, costs, and schedules of future defense acquisition programs.

[37] Ibid., 35.

[38] Shelton, "QDR 2001": 22. "The current force structure, …and the capabilities of this force were judged as presenting moderate operational risk, although certain combinations of warfighting and smaller-scale contingency scenarios present high risk."

[39] Goure, xv – preface. "This situation of underfunding of national defense is not new; it has been going on for some time and will take years to overcome. …What makes today's situation different is the fact that the equipment of the current U.S. military force is running out of useful life — nearly all at once.";

Paul Wolfowitz, "Prepared Statement for Senate Armed Services Committee Hearing on Military Transformation" 9 April 2002; Available from <http://www.defenselink.mil/speeches>; Internet; Accessed on 26 September 2002. Transformation requires robust funding to achieve the capabilities of leap-ahead technology described in the vision. During a hearing on military transformation to the Senate Armed Services Committee last April, Paul Wolfowitz testified that "…transformational investments account for 17 percent (about $21 billion) of all procurement and RDT&E [research development testing and experimentation] in 2003, rising to 22 percent by 2007." This total does not include an additional $25 billion (FY03) to fund transformation enablers and critical current capability sustainment. Nor does it account for $10.5 billion (FY03) to combat terrorism. Despite this impressive commitment to transformation, most critics agree a substantial policy resource mismatch remains.

[40] U.S. Army War College, How the Army Runs: A Senior Leader Reference Handbook 2001-2002 (Pittsburg: Government Printing Office, 2001) [Abbreviated as HTAR in future reference], 4-10 thru 4-11.

M. Thomas Davis, "BENS Special Report: Framing the Problem of PPBS," in Selected Readings, Volume II, Course 3: Joint Processes and Landpower Development (Carlisle Baracks, PA: U.S. Army War College, Academic Year 2003), 20.

[41] Davis, "BENS Special Report: Framing the Problem of PPBS" 12.

[42] U.S. Department of the Army, "The Army Plan (TAP): 2004-2019," Accessed from <http://www.hqda-odcsops.army.pentagon.mil/taps-mil/default.htm>; Internet; Accessed on 12 November 2002 [Abbreviated as TAP in future reference], 7.

[43] Davis, "BENS Special Report: Framing the Problem of PPBS", 6. M. Thomas Davis points out the PPBS is a centrally directed and controlled process, with de-central execution. While centrally directed activity and decision making are requirements to establish order in any system as large as the Army's resource management system, the central control of the process might warrant further examination. Without those strict controls, alternative approaches to these complex problems may more easily find their way to decision makers.

[44] Davis, "BENS Special Report: Framing the Problem of PPBS", 6.

[45] HTAR, 9-39. The Research, Development, and Acquisition Plan (RDAP) also plays in this process by infusing technical as well as fiscally achievable constraints on technology maturity options. It "…converts materiel requirements from an unconstrained planning environment to a balanced but truncated RDA program that is both technically and fiscally achievable."

[46] James R. Schlesinger, "Organizational Structures and Planning," in Selected Papers on National Security, 1964-1968, Santa Monica: The Rand Press, 1974, p. 73. Quoted in Davis, "BENS Special Report: Framing the Problem of PPBS." As far back as 1966 James R. Schlesinger, a future Secretary of Defense, commented on John McNamara's initial establishment of the PPBS system. He said "I myself doubt whether the same attention will be paid to the long-range program and the accompanying documentation requirements." Prophetic statement since the CSA Eric K. Shinseki pulled the requirement validation process up to Department of the Army level.

[47] Davis, "BENS Special Report: Framing the Problem of PPBS", 9. "The congressional view is predominantly focused on the budgeting function of PPBS. …Members of congress interested in defense issues have expressed concern that the budgets they receive neither clearly relate to strategic demands nor fully reflect integrated, rational decision making."

[48] "Department of Defense Planning, Programming, and Budgeting System (PPBS)/Army Planning, Programming, Budgeting, and Execution System (PPBES): An Executive Primer," (Carlisle Barracks, PA: U.S. Army War College, Updated November 2002.). [Abbreviated as "PPBS Primer" in future reference], 5.

[49] Davis, "BENS Special Report: Framing the Problem of PPBS", 9. "The congressional view is predominantly focused on the budgeting function of PPBS. …Members of congress interested in defense issues have expressed concern that the budgets they receive neither clearly relate to strategic demands nor fully reflect integrated, rational decision making."

U.S. Department of the Army, Operational Concept Combat Service Support. TRADOC Pamphlet 525-53, (Fort Monroe, VA: United States Army Training and Doctrine Command, 1 April 1997), para 3-2c.(3). To illustrate how our concepts are parochial consider the wording of TRADOC Pam 525-53, "Operational Concept Combat Service Support", which states: "The ability to rapidly project power worldwide will depend on increased airlift capability, increased sealift surge capability, improved readiness and responsiveness of the ready reserve force, and increased prepositioning of heavy equipment afloat and on land." To the best of my knowledge, the other services have not programmed or prioritized for these capabilities in the FYDP, and the CJCS has not directed the other services or signed up to provide these capabilities through the JROC. Yet the internal consistency of the concept is dependent on the joint service buy-in, as proven by the warfighting experiments and simulations used to validate the concepts.

[50] U.S. Department of the Army, "The Army Plan (TAP): 2004-2019," [Abbreviated as "TAP" in future reference]; Accessed from <http://www.hqda-odcsops.army.pentagon.mil/taps-mil/default.htm>; Internet; Accessed on 12 November 2002: 7.

[51] Goure, 28-30.

[52] TAP, 9.

[53] Goure, 39. Cites a quote by Les Aspin "An approach to sizing American Conventional Forces for the Post-Soviet Era".

[54] General Accounting Office, Military Transformation: Army has a Comprehensive Plan for Managing its Transformation but Faces Major Challenges (Washington, D.C.: U.S. General Accounting Office,16 November 2001).

[55] A few categories to highlight include: Army data distribution, operational and strategic air lift, advanced tactical aircraft, logistics data management systems and the automated command and control system integration associated with the Army Battle Command System.

[56] HTAR, 9-28.

[57] M. Thomas Davis, "Changing the Pentagon's Planning, Programming, and Budgeting System: Phase 2 Report," in Selected Readings, Volume II, Course 3: Joint Processes and Landpower Development (Carlisle Barracks, PA: U.S. Army War College, Academic Year 2003), 218 - 258.
Robert B. Zoellick, "National Security Strategy and the Defense Budget," Statement of President and CEO, Center for Strategic & International Studies to the Committee on the Budget of the U.S. Senate, 24 February 1999; Available from <http://www.csis.org/hill/ts990224.html>; Internet; Accessed on 20 November 2002. DoD and congress do not fund contingencies or short notice operations. "It is unrealistic not to budget for operations like Iraq and Bosnia. If the U.S. security strategy is going to be viable, the funds need to match the plans."

[58] Goure, 34. Failure to take into account realistic operational challenges, historic trends affecting attrition replacement, and recapitalization plans for aging fleets stains the system during near-term budget prioritization drills. "Near-term operational considerations will take precedence over long-term considerations. Without procurement dollars to purchase replacements, senior defense officials will have no choice but to accept reductions in QDR force capabilities at the moment the end of useful life is reached."

[59] Goure, 86.

[60] Davis, "BENS Special Report: Framing the Problem of PPBS", 14.

[61] Goure, 86.

[62] Robert B. Zoellick, "National Security Strategy and the Defense Budget," Statement of President and CEO, Center for Strategic & International Studies to the Committee on the Budget of the U.S. Senate; 24 February 1999; Available from <http://www.csis.org/hill/ts990224.html>; Internet; Accessed on 20 November 2002.

[63] Goure, 124.

[64] Davis, "Changing the Pentagon's Planning, Programming, and Budgeting System: Phase 2 Report", 239-240.

[65] Ippolito, Budget Policy and Fiscal Risk: Implications for Defense, 25-28. Points out that the GDP revenue ceiling (taxes) is about 20 percent. Even during WWII it did not exceed 21 percent. He also points out that by 2050, unless benefits change, social security, Medicare, and Medicaid will consume over 20 percent of the GDP by themselves.

[66] Ippolito, Budget Policy and Fiscal Risk: Implications for Defense, 26.

[67] Derived from Congressional Budget Office budgets and economic projections. HTTP://www.cbo.gov, accessed 5 Jan 03

[68] Davis, "Changing the Pentagon's Planning, Programming, and Budgeting System: Phase 2 Report", 233. "If programming were done well, with the programs contained in it 'fully funded' based upon projections that are realistic rather than optimistic, with fully analyzed alternatives, and with decisions made in a timely manner, budgeting should be little more than resorting FYDP data into the various appropriations accounts."

[69] TAP, 7.

[70] Zoellick. While he was admittedly addressing the QDR 1997, Robert Zoellick made the assessment that, "…the Administration should overhaul its QDR plan. …the Administration has been unable to fund its own defense plan. …At some point, the policy of doing more with less just becomes doing less with less. We have reached that point."

[71] Directorate of Program, Analysis & Evaluation (PA&E). "Resourcing the Future." Draft briefing from the Army's PA&E to the Army's DCS, Programs (G8). (Department of the Army, PA&E; Washington, D.C., October 2002).

[72] HTAR, 10-1. Testimony of the Chief of Staff, Army, General Eric K. Shinseki, before the House Armed Service Committee on 27 September 2000.

[73] Zoellick. "In sum, the U.S. defense budget has lived off past investments in equipment and borrowed from the future in a vain effort to keep up with present needs. …The fundamental problem, however, cannot be avoided: The United States military has been both living off depreciating assets and taking from investments that are supposed to buy the means to protect the country in the future. This is a failure of preparedness."

[74] General Accounting Office, Army Inventory: Parts Shortages are Impacting Operations and Maintenance Effectiveness (Washington, D.C.: U.S. General Accounting Office, Report number: GAO-010772, 31 July 2001). "Shortages of spare parts are a key indicator of supply system problems that can result in the unavailability of weapons systems to meet mission requirements. Despite additional funding by Congress to address this issue, the Army is still reporting concerns about spare parts shortages. Aviation spare parts shortages for the Apache, Blackhawk, and Chinook helicopters have adversely affected operations and led to inefficient maintenance practices that have lowered morale of maintenance personnel.

Also see:

Frank R. Wolf, "Report of a Visit to the Balkans Kosovo: The Latest Balkans Hot Spot February 13-18, 1999," Statement by U.S. Representative Frank R. Wolf; Available from <http//www.house.gov/wolf/1999203kosovo.htm>; Internet; Accessed on 5 Jan 03.

[75] Davis, "BENS Special Report: Framing the Problem of PPBS", 14. PPBS provides "…a mechanism forcing decisions in the near-term and identifying mid-term implications, in many instances senior leaders have elected to underfund programs."

[76] PA&E Brief to G8 entitled "Resourcing the Future".

[77] PA&E Brief to G8 entitled "Resourcing the Future".

[78] The division aviation air troops are an example of this practice. Initially, the Army fielded Kiowa Warriors as a one-one substitution into a structure that was conceptually designed and validated for Comanche. The Kiowa Warrior never met the operational requirements of the Army. Now that Comanche is being fielded, OSD arguing that we have been doing the mission with the Kiowa Warrior and we should not expect to see a one-for-one replacement.

[79] To be technically correct, there can only be a UFR in the POM. By definition, the requirements pushed into the EPP are not funded. There is an ever increasing tendency however, to push 'unaffordable' requirements into the EPP. And a more disturbing practice of pushing requirements beyond the EPP. This practice is disingenuous, it masks affordability issues, and should definitely be stopped.

[80] Zoellick. "If the defense strategy and budget remains preoccupied with the current environment, the country will be risking the world's stability, its home territory and population, other vital interests, and the young men and women who put their lives on the line to safeguard their country. Most of all, it will be risking America's greatest cause: the future."

[81] Ibid.

[82] Goure, 54.

[83] QDR 2001: 49.

[84] "Army Announces Business Initiatives to Support Transformation." U.S. Army News Release #R-02073, 21 November 2002; Available from <http://www.asafm.army.mil/BIC.asp>; Internet; Accessed on 8 December 2002.

[85] Ibid. The executive director of the Army BIC, Dr. Craig College, pointed out "The anticipated results of Army BIC initiatives are efficiencies that will free manpower and funding resources to be reallocated to Army Transformation."

[86] Shelton, "QDR 2001": 53.

[87] Steve Cambone, "Dr. Cambone Briefing on the Office of Programs, Analysis, and Evaluation," 18 September 2002; Available from <http://www.defenselink.mil/news/sep2002/t09182002_t918camb.html>; Internet; Accessed on 20 September 2002.

[88] PPBS primer, 17; and HTAR, 9-48. If principle officials from OSD and DA staffs agree on how to resolve these issues outside the Defense Review Board (DRB), it is called an out-of-court settlement. The disposition of remaining issues are decided by OSD and published in Program Budget Decisions (PBD).

[89] Davis, "Changing the Pentagon's Planning, Programming, and Budgeting System: Phase 2 Report", 232.

[90] Derived from CSIS estimate that we require 4% of GDP over the next 20 years to sustain the force and transform, the current defense budget which represents 3.1% of the 2002 GDP, and a CBO projected 2002 GDP of $10.5 trillion dollars. Of course this figure is highly suspect in light of the increased costs over the next several years that would be realized if the Army implemented the candid most likely programming estimates, pulled requirement funding into the POM and EPP years, and resourced modeled capabilities across all approved systems with realistic technology maturity funding estimates.

[91] Davis, "BENS Special Report: Framing the Problem of PPBS", 13. Mr. Davis' article describes the bow wave phenomenon and its causes.

[92] Goure, 132.

BIBLIOGRAPHY

ABC News. "Defense Cuts Loom: Bush Administration Readies Budget Axe." 15 August 2001. Available from <http://abcnews.go.com/sections/wnt/DailyNews/mcwethy010815.html>. Internet. Accessed on 20 November 2002.

"Army Announces Business Initiatives to Support Transformation." U.S. Army News Release #R-02073, 21 November 2002. Available from <http://www.asafm.army.mil/BIC.asp>. Internet. Accessed on 8 December 2002.

Baumgardner, Neil. "Army Transformation Wargame to Examine Industrial Base Mobilization", Defense Daily Internatinal. Vol.2, No.23: PBI Media, LLC, 12 April 2002.

Bush, George W. A National Security Strategy of the United States of America. Washington D.C.: The White House, September 2002.

Cambone, Stephen. "Dr. Cambone Briefing on the Office of Programs, Analysis, and Evaluation." 18 September 2002. Available from <http://www.defenselink.mil/news/sep2002/t09182002_t918camb.html>. Internet. Accessed on 20 September 2002.

Cambone, Stephen. Briefing Slides "Defense Program Overview." 18 September 2002. Available from <http://www.defenselink.mil/news/sep2002/t09182002_t918camb.html>. Internet. Accessed on 20 September 2002.

Center on Policy Attitudes. "Americans on the Federal Budget: Executive Summary." September 2000. Available from <www.policyattitudes.org/onlineReports/Budget/exec_sum.html>. Internet. Accessed on 7 November 2002.

Clinton, William J. A National Security Strategy for A Global Age. Washington D.C.: The White House, December 2000.

Conetta, Carl. "The Pentagon's New Budget, New Strategy, and New War." 25 June 02. Available from <http://www.comw.org/pda/0206newwar.html>. Internet. Accessed on 11 September 2002.

Conetta, Carl. "Toward a Smaller, More Efficient, and More Relevant US Military." Cambridge, MA: Commonwealth Institute, Project on Defense Alternatives Briefing Memo#17. Oct 2000. Available from <www.comw.org/pda/0010bm17.html>. Internet. Accessed on 7 November 2002.

Dao, James. "Big Bucks Trip Up the Lean New Army." New York Times, 10 February 2002, Sec. 1, 20.

Davis, Thomas M. "BENS Special Report: Framing the Problem of PPBS," in Selected Readings, Volume II, Course 3: Joint Processes and Landpower Development (Carlisle Baracks, PA: U.S. Army War College, Academic Year 2003), 193 – 217.

Davis, Thomas M.. "Changing the Pentagon's Planning, Programming, and Budgeting System: Phase 2 Report", in Selected Readings, Volume II, Course 3: Joint Processes and Landpower Development (Carlisle Barracks, PA: U.S. Army War College, Academic Year 2003), 218 - 258.

"Department of Defense Planning, Programming, and Budgeting System (PPBS)/Army Planning, Programming, Budgeting, and Execution System (PPBES): An Executive Primer." Carlisle Barracks, PA: U.S. Army War College. Updated November 2002.

Directorate of Program, Analysis & Evaluation (PA&E). "Resourcing the Future." Draft briefing from the Army's PA&E to the Army's DCS, Programs (G8). Department of the Army, PA&E. Washington, D.C.: October 2002.

"Fiscal Year (FY) 2003 Budget Estimates: Army Working Capital Fund." February 2002. Available from <www.asafm.army.mil/budget/fybm/fy03/awcf.pdf>. Internet. Accessed on 8 December 2002.

Goure, Daniel, and Jeffrey M. Ranney. Averting the Defense Train Wreck in the New Millennium. Washington, D.C.: The Center for Strategic and International Studies Press, 1999.

Hellman, Christopher and Stephen H. Baker. "Bush Budget Stalls Transformation Drive", First appeared in Defense News, 4 February 2002. Available from <http://www.cdi.org/issues/budget/transformation-stalls-pr.cfm>. Internet. Accessed on 19 December 2002.

Ippolito, Dennis S. Budget Policy and Fiscal Risk: Implications for Defense. Carlisle Barracks, PA: U.S. Army War College Strategic Studies Institute, September 2001.

Ippolito, Dennis S. Federal Budget Policy and Defense Strategy. Carlisle Barracks, PA: U.S. Army War College Strategic Studies Institute, 15 February 1996.

Keeter, Hunter. "Rumsfeld Pushes for Continued support of Defense Spending Increase." Defense Daily. 211, no. 39 (24 August 2001): 1.

Keeter, Hunter. "Rumsfeld Seeks $18 Billion in Cuts to Pentagon Bureaucracy." Defense Daily International. 2, no. 34 (14 September 01): 1.

Keeter, Hunter. "Rumsfeld: Crusader Cancellation Supports Army Transformation." Defense Daily International 3, no.34 (10 May 2002): 1.

Keeter, Hunter. "Wolfowitz: More Resources, Better Management Keys to Defense Transformation." Defense Daily International. 2, no. 30 (10 August 2001): .

Krepinevich, Andrew. "The Bush Administration's Call for Defense Transformation: A Congressional Guide." 19 July 2001. Available from <http://www.csbaonline.org/4Publications/Archive/H.20010619.The_Bush_Administr>. Internet. Accessed on 11 September 2002.

Myers, Richard B. National Military Strategy of the United States of America (Pre-decisional Draft). Washington, D.C.: Chairman, Joint Chiefs of Staff, 19 September 2002.

O'Hanlon, Michael E. "Modernizing and Transforming U.S. Forces: Alternative Paths to the Force of Tomorrow." QDR 2001: Strategy-Driven Choices for Americas Security. Washington, D.C.: National Defense University Press, 2001.

Office of Management and Budget. "Department of Defense." Available from <http://www.whitehouse.gov/omb/budget/fy2003/bud12.html>. Internet. Accessed on 8 December 2002.

Pirnie, Bruce, John Gordon, Louis Moore, Robert Howe, Daniel R. Gonzales, and David Johnson. "A Report on the Army Transformation Wargame 2000." Rand Arroyo Center, 2001.

Preston, Peter. "Spending Spree at the Pentagon." New York Times. 10 February 2003. Section A, 22.

Rice, Condoleezza. "Dr. Condoleezza Rice Discusses President's National Security Strategy." Office of the Press Secretary. 1 October 2002. Available from <http://www.whitehouse.gov/news/releases/2002/10/20021001-6.html>. Internet. Accessed on 15 November 2002.

Shelton, Henry H. "Quadrennial Defense Review Report." 30 September 2001. Available from <http://www.defenselink.mil/pubs/qdr2001.pdf>. Internet. Accessed on 11 September 2002.

Shelton, Henry H. Joint Vision 2020. Washington D.C.: U.S. Government Printing Office, June 2000.

Shinseki, Eric K. and White, Thomas E. "Army Transformation Roadmap," Department of the Army, June 2002. Available from <http://www.army.mil/vision/transformation_Roadmap.pdf>. Internet. Accessed on 19 December 2002.

Thompson, Loren. "Transformation or Ideology?" Defense News. 23-29 Sep 2002.S pg 15

"Transformation Wargames Adds Realism to Scenario." 25 April 2002. Available from <http://www.dtic.mil/armylink/news/Apr2002/>. Internet. Accessed on 11 September 2002.

U.S. Army War College. How the Army Runs: A Senior Leader Reference Handbook 2001-2002. Pittsburg: Government Printing Office, 2001.

U.S. Congressional Budget Office. "Current Budget Projections" and "Current Economic Projections." December 2002. Available from <http://www.cbo.gov>. Internet. Accessed on 5 January 2003.

U.S. Department of the Army. "The Army Plan (TAP): 2004-2019." Accessed from <http://www.hqda-odcsops.army.pentagon.mil/taps-mil/default.htm>. Internet. Accessed on 12 November 2002.

U.S. Department of the Army. Battlefield Distribution. TRADOC Pamphlet 525-77. Fort Monroe, VA: United States Army Training and Doctrine Command. 2 February 1998.

U.S. Department of the Army. Objective Force Maneuver Units of Action. TRADOC Pamphlet 525-3-90. Fort Monroe, VA: United States Army Training and Doctrine Command, 1 November 2002.

U.S. Department of the Army. Operational Concept Combat Service Support. TRADOC Pamphlet 525-53. Fort Monroe, VA: United States Army Training and Doctrine Command, 1 April 1997.

U.S. General Accounting Office. Army Inventory: Parts Shortages are Impacting Operations and Maintenance Effectiveness. Washington, D.C.: U.S. General Accounting Office, Report number: GAO-010772, 31 July 2001.

U.S. General Accounting Office. Military Transformation: Army has a Comprehensive Plan for Managing its Transformation but Faces Major Challenges. Washington, D.C.: U.S. General Accounting Office, Report number: GAO-02-96, 16 November 2001.

Wall, Robert. "Larger Pentagon Budget Boosts Select Technologies." Aviation Week & Space Technology. 10 February 2003. (New York: 6, vol. 158): 62-63.

White, Thomas. "ADR 2002 Report of the Secretary of the Army." Available from <http://www.defenselink.com/execsec/adr2002/html_files/army_rpt.html>. Internet. Accessed on 24 September 2002.

Wolf, Frank R. "Report of a Visit to the Balkans Kosovo: The Latest Balkans Hot Spot February 13-18, 1999." Statement by U.S. Representative Frank R. Wolf. Available from <http//www.house.gov/wolf/1999203kosovo.htm>. Internet. Accessed on 5 Jan 03.

Wolfowitz, Paul. "Prepared Statement for Senate Armed Services Committee Hearing on Military Transformation." 9 April 2002. Available from <http://www.defenselink.mil/speeches>. Internet. Accessed on 26 September 2002.

Wolfowitz, Paul. "Prepared Testimony on the FY2003 Defense Budget Request to the SAC-D." 27 February 2002. Available from <http://www.defenselink.mil/speeches>. Internet. Accessed on 24 September 2002.

Wolfowitz, Paul. "Testimony delivered before the Senate Armed Services Committee on Military Transformation." 9 April 2002. Available from <http://www.defenselink.mil/speeches>. Internet. Accessed on 26 September 2002.

Zoellick, Robert B. "National Security Strategy and the Defense Budget." Statement of President and CEO, Center for Strategic & International Studies to the Committee on the Budget of the U.S. Senate. 24 February 1999. Available from <http://www.csis.org/hill/ts990224.html>. Internet. Accessed on 20 November 2002.